



US008460254B2

(12) **United States Patent**
Belsley

(10) **Patent No.:** **US 8,460,254 B2**
(45) **Date of Patent:** ***Jun. 11, 2013**

(54) **ADJUSTABLE DEVICE DELIVERY SYSTEM**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 412 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/965,494**

(22) Filed: **Dec. 10, 2010**

(65) **Prior Publication Data**

US 2011/0137125 A1 Jun. 9, 2011

Related U.S. Application Data

(63) Continuation of application No. 10/558,313, filed as application No. PCT/US2004/015962 on May 21, 2004, now Pat. No. 7,854,727.

(60) Provisional application No. 60/472,875, filed on May 23, 2003.

(51) **Int. Cl.**
A61M 25/00 (2006.01)

(52) **U.S. Cl.**
USPC **604/264**

(58) **Field of Classification Search**
USPC 604/246, 523, 528, 95.01, 117; 600/123, 600/146, 107

See application file for complete search history.

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(57) **ABSTRACT**

Herein are described components and use of an adjustable device delivery system including an adjustable internal door which allows angled deployment of medical devices, non-medical devices and electromagnetic radiation. In one embodiment, a slotted outer cannula is used with an inner drive cannula to guide the motion of an adjustable interior door that allows delivery of devices, such as medical instruments, at user-defined angles. The invention also provides device delivery systems that permit withdrawal of the adjustable device delivery system without disruption of a device placed therewith. The device delivery systems of the invention are provided having a steering system that permits exact control of the angle of the adjustable internal door while providing support against longitudinal forces. Also provided are embodiments of the devices of the invention comprising a locking system that provides frictional resistance to overcome unwanted displacement of the door angle and drive system when, for example, manipulation of the device delivery system during its use increases the forces applied to the door surface. The invention further provides methods for using the device delivery systems provided herein for delivering or receiving electromagnetic waves by deflection or reflection of such radiation by the adjustable internal door. The invention also provides methods for steering a device or device delivery system within a confined space.

39 Claims, 52 Drawing Sheets

